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RAW SEQUENCE LISTING

DATE: 09/17/2003

PATENT APPLICATION: US/10/652,928

TIME: 09:43:49

Input Set : N:\CrF3\RULE60\10652928.raw.txt

Output Set: N:\CRF4\09172003\J652928.raw

1 <110> APPLICANT: Chiaur, D.
 2 Pagano, M.
 3 Latres, E.
 4 <120> TITLE OF INVENTION: NOVEL UBIQUITIN LIGASES AS THERAPEUTIC TARGETS
 5 <130> FILE REFERENCE: 5914-081
 6 <140> CURRENT APPLICATION NUMBER: 10/652,928
 C--> 7 <141> **CURRENT FILING DATE: 2003-08-28**
 8 <150> PRIOR APPLICATION NUMBER: US/09/385,219A
 9 <151> PRIOR FILING DATE: 1999-08-27
 10 <150> PRIOR APPLICATION NUMBER: 60/098,355
 11 <151> PRIOR FILING DATE: 1998-08-28
 12 <150> PRIOR APPLICATION NUMBER: 60/118,568
 13 <151> PRIOR FILING DATE: 1999-02-03
 14 <150> PRIOR APPLICATION NUMBER: 60/124,449
 15 <151> PRIOR FILING DATE: 1999-03-15
 16 <160> NUMBER OF SEQ ID NOS: 90
 17 <170> SOFTWARE: PatentIn Ver. 2.0
 19 <210> SEQ ID NO: 1
 20 <211> LENGTH: 2151
 21 <212> TYPE: DNA
 22 <213> ORGANISM: Homo sapiens
 23 <400> SEQUENCE: 1
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 25 tcggcgatta tggaccggc cgaggcgggt ctgcaagaga aggcactcaa gtttatgaat 120
 26 tcctcagaga gagaagactg taataatggc gaaccccccta ggaagataat accagagaag 180
 27 aattcactta gacagacata caacagctgt gccagactct gcttaaacca agaaacagta 240
 28 tgtttagcaa gcaactgctat gaagactgag aattgtgtgg ccaaaacaaa acttgccaat 300
 29 ggcacttcca gtatgattgt gccaagcaa cggaaactct cagcaagcta tgaaaaggaa 360
 30 aaggaactgt gtgtcaaata ctttgagcag tggtcagagt cagatcaagt ggaatttgtg 420
 31 gaacatctta tatcccaaat gtgtcattac caacatgggc acataaactc gtatcttaaa 480
 32 cctatgttgc agagagattt cataactgct ctgccagctc ggggattgga tcatatcgct 540
 33 gagaacattc tgtcatacct ggatgccaaa tcaactatgt ctgctgaact tgtgtgcaag 600
 34 gaatggtacc gagtgacctc tgatggcatg ctgtggaaga agcttatcga gagaatggtc 660
 35 aggacagatt ctctgtggag aggcctggca gaacgaagag gatggggaca gtattttattc 720
 36 aaaaacaaac ctctgacgg gaatgtcctt cccaactctt tttatagagc actttatcct 780
 37 aaaattatac aagacattga gacaatagaa tctaattgga gatgtggaag acatagttaa 840
 38 cagagaattc actgccgaag tgaacaagc aaaggagttt actgtttaca gtatgatgat 900
 39 cagaaaatag taagcggcct tcgagacaac acaatcaaga tctgggataa aaacacattg 960
 40 gaatgcaagc gaattctcac aggcataca ggttcagtc tctgtctcca gtatgatgat 1020
 41 agagtgatca taacaggatc atcggattcc acggtcagag tgtgggatgt aaatacaggt 1080
 42 gaaatgctaa acacgttgat tcaccattgt gaagcagttc tgcacttgcg tttcaataat 1140
 43 ggcattgatg tgacctgctc caaagatcgt tccattgctg tatgggatat ggcctcccca 1200
 44 actgacatta ccctccggag ggtgctggtc ggacaccgag ctgctgtcaa tgtttagtag 1260

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Input Set : N:\Crf3\RULE60\10652928.raw.txt

Output Set: N:\CRF4\09172003\J652928.raw

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46   agtacttggt aatttgtaag gaccttaaat ggacacaaac gaggcattgc ctgtttgcag 1380
47   tacagggaca ggctggtagt gagtggctca tctgacaaca ctatcagatt atgggacata 1440
48   gaatgtggtg catgtttacg agtgttagaa ggccatgagg aattggtgcg ttgtattcga 1500
49   tttgataaca agaggatagt cagtggggcc tatgatggaa aaattaaagt gtgggatctt 1560
50   gtggctgctt tggacccccg tgctcctgca gggacactct gtctacggac ccttgtggag 1620
51   cattccggaa gagtttttcg actacagttt gatgaattcc agattgtcag tagttcacat 1680
52   gatgacacaa tctcctctg ggacttcta aatgatccag ctgcccgaagc tgaaccccc 1740
53   cgttccccct ctcgaacata cacctacatc tccagataaa taaccataca ctgacctcat 1800
54   acttgcccag gaccatttaa agttgcggta tttaacgtat ctgccaatac caggatgagc 1860
55   aacaacagta acaatcaaac tactgccag tttccctgga ctagccgagg agcagggtct 1920
56   tgagactcct gttgggacac agttggtctg cagtcggccc aggacggtct actcagcaca 1980
57   actgactgct tcagtgtctg tatcagaaga tgtcttctat caattgtgaa tgattggaac 2040
58   ttttaaacct cccctcctct cctcctttca cctctgcacc tagttttttc ccattgggtc 2100
59   cagacaaagg tgacttataa atatatttag tgttttgcca gaaaaaaaaa a 2151
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62 <211> LENGTH: 569
63 <212> TYPE: PRT
64 <213> ORGANISM: Homo sapiens
65 <400> SEQUENCE: 2
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67       1           5           10           15
68   Asn Ser Ser Glu Arg Glu Asp Cys Asn Asn Gly Glu Pro Pro Arg Lys
69       20           25           30
70   Ile Ile Pro Glu Lys Asn Ser Leu Arg Gln Thr Tyr Asn Ser Cys Ala
71       35           40           45
72   Arg Leu Cys Leu Asn Gln Glu Thr Val Cys Leu Ala Ser Thr Ala Met
73       50           55           60
74   Lys Thr Glu Asn Cys Val Ala Lys Thr Lys Leu Ala Asn Gly Thr Ser
75       65           70           75           80
76   Ser Met Ile Val Pro Lys Gln Arg Lys Leu Ser Ala Ser Tyr Glu Lys
77       85           90           95
78   Glu Lys Glu Leu Cys Val Lys Tyr Phe Glu Gln Trp Ser Glu Ser Asp
79       100          105          110
80   Gln Val Glu Phe Val Glu His Leu Ile Ser Gln Met Cys His Tyr Gln
81       115          120          125
82   His Gly His Ile Asn Ser Tyr Leu Lys Pro Met Leu Gln Arg Asp Phe
83       130          135          140
84   Ile Thr Ala Leu Pro Ala Arg Gly Leu Asp His Ile Ala Glu Asn Ile
85       145          150          155          160
86   Leu Ser Tyr Leu Asp Ala Lys Ser Leu Cys Ala Ala Glu Leu Val Cys
87       165          170          175
88   Lys Glu Trp Tyr Arg Val Thr Ser Asp Gly Met Leu Trp Lys Lys Leu
89       180          185          190
90   Ile Glu Arg Met Val Arg Thr Asp Ser Leu Trp Arg Gly Leu Ala Glu
91       195          200          205
92   Arg Arg Gly Trp Gly Gln Tyr Leu Phe Lys Asn Lys Pro Pro Asp Gly
93       210          215          220
94   Asn Ala Pro Pro Asn Ser Phe Tyr Arg Ala Leu Tyr Pro Lys Ile Ile

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Input Set : N:\Crf3\RULE60\10652928.raw.txt

Output Set: N:\CRF4\09172003\J652928.raw

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95      225      230      235      240
96      Gln Asp Ile Glu Thr Ile Glu Ser Asn Trp Arg Cys Gly Arg His Ser
97              245      250      255
98      Leu Gln Arg Ile His Cys Arg Ser Glu Thr Ser Lys Gly Val Tyr Cys
99              260      265      270
100     Leu Gln Tyr Asp Asp Gln Lys Ile Val Ser Gly Leu Arg Asp Asn Thr
101              275      280      285
102     Ile Lys Ile Trp Asp Lys Asn Thr Leu Glu Cys Lys Arg Ile Leu Thr
103              290      295      300
104     Gly His Thr Gly Ser Val Leu Cys Leu Gln Tyr Asp Glu Arg Val Ile
105     305              310      315      320
106     Ile Thr Gly Ser Ser Asp Ser Thr Val Arg Val Trp Asp Val Asn Thr
107              325      330      335
108     Gly Glu Met Leu Asn Thr Leu Ile His His Cys Glu Ala Val Leu His
109              340      345      350
110     Leu Arg Phe Asn Asn Gly Met Met Val Thr Cys Ser Lys Asp Arg Ser
111              355      360      365
112     Ile Ala Val Trp Asp Met Ala Ser Pro Thr Asp Ile Thr Leu Arg Arg
113              370      375      380
114     Val Leu Val Gly His Arg Ala Ala Val Asn Val Val Asp Phe Asp Asp
115     385              390      395      400
116     Lys Tyr Ile Val Ser Ala Ser Gly Asp Arg Thr Ile Lys Val Trp Asn
117              405      410      415
118     Thr Ser Thr Cys Glu Phe Val Arg Thr Leu Asn Gly His Lys Arg Gly
119              420      425      430
120     Ile Ala Cys Leu Gln Tyr Arg Asp Arg Leu Val Val Ser Gly Ser Ser
121              435      440      445
122     Asp Asn Thr Ile Arg Leu Trp Asp Ile Glu Cys Gly Ala Cys Leu Arg
123     450              455      460
124     Val Leu Glu Gly His Glu Glu Leu Val Arg Cys Ile Arg Phe Asp Asn
125     465              470      475      480
126     Lys Arg Ile Val Ser Gly Ala Tyr Asp Gly Lys Ile Lys Val Trp Asp
127              485      490      495
128     Leu Val Ala Ala Leu Asp Pro Arg Ala Pro Ala Gly Thr Leu Cys Leu
129              500      505      510
130     Arg Thr Leu Val Glu His Ser Gly Arg Val Phe Arg Leu Gln Phe Asp
131              515      520      525
132     Glu Phe Gln Ile Val Ser Ser His Asp Asp Thr Ile Leu Ile Trp
133     530              535      540
134     Asp Phe Leu Asn Asp Pro Ala Ala Gln Ala Glu Pro Pro Arg Ser Pro
135     545              550      555      560
136     Ser Arg Thr Tyr Thr Tyr Ile Ser Arg
137              565
139 <210> SEQ ID NO: 3
140 <211> LENGTH: 1476
141 <212> TYPE: DNA
142 <213> ORGANISM: Homo sapiens
143 <400> SEQUENCE: 3
144     atggagagaa aggactttga gacatggctt gataacattt ctgttacatt tctttctctg 60

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TIME: 09:43:49

Input Set : N:\CrF3\RULE60\10652928.raw.txt

Output Set: N:\CRF4\09172003\J652928.raw

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145   acggacttgc agaaaaatga aactctggat cacctgatta gtctgagtgg ggcagtccag 120
146   ctcaggcatc tctccaataa cctagagact ctctcaagc gggacttcct caaactcctt 180
147   cccctggagc tcagttttta tttgttaaaa tggctcgatc ctcagacttt actcacatgc 240
148   tgcctcgtct ctaaacagtg gaataaggtg ataagtgcct gtacagaggt gtggcagact 300
149   gcatgtaaaa atttgggctg gcagatagat gattctgttc aggacgcttt gcaactggaag 360
150   aaggtttatt tgaaggctat tttgagaatg aagcaactgg aggaccatga agcctttgaa 420
151   acctcgatc taattggaca cagtgccaga gtgtatgcac ttactacaa agatggactt 480
152   ctctgtacag ggtcagatga cttgtctgca aagctgtggg atgtgagcac agggcagtgc 540
153   gtttatggca tccagaccca cacttgtgca gcggtgaagt ttgatgaaca gaagcttgtg 600
154   acaggctcct ttgacaacac tgtggcttgc tgggaatgga gttccggagc caggacccag 660
155   cactttcggg ggcacacggg ggcggtatct agcgtggact acaatgatga actggatatc 720
156   ttggtgagcg gctctgcaga cttcactgtg aaagtatggg ctttatctgc tgggacatgc 780
157   ctgaacacac tcaccgggca cacggaatgg gtcaccaagg tagttttgca gaagtgcaaa 840
158   gtcaagtctc tcttgacag tcttgagac tacatcctct taagtgcaga caaatatgag 900
159   attaagattt ggccaattgg gagagaaatc aactgtaagt gcttaaagac attgtctgtc 960
160   tctgaggata gaagtatctg cctgcagcca agacttcatt ttgatggcaa atacattgtc 1020
161   tgtagttcag cacttggctc ctaccagtgg gactttgcc gttatgatat tctcagggtc 1080
162   atcaagactc ctgagatagc aaacttggcc ttgcttggct ttggagatat ctttgccttg 1140
163   ctgtttgaca accgtacct gtacatcatg gacttgcgga cagagagcct gattagtcgc 1200
164   tggcctctgc cagagtacag ggaatcaaag agaggctcaa gcttcctggc aggcgaacat 1260
165   cctggctgaa tggactggat gggcacaaatg acacgggctt ggtctttgcc accagcatgc 1320
166   ctgaccacag tattcacctg gtgttgtgga aggagcacgg ctgacaccat gagccaccac 1380
167   cgctgactga ctttgggtgc cggggctgcg ggttttgggt gcacctctgc ggcacgcgac 1440
168   tgcataaacc aaagttctca cctaattgta tcatca 1476
170 <210> SEQ ID NO: 4
171 <211> LENGTH: 422
172 <212> TYPE: PRT
173 <213> ORGANISM: Homo sapiens
174 <400> SEQUENCE: 4
175   Met Glu Arg Lys Asp Phe Glu Thr Trp Leu Asp Asn Ile Ser Val Thr
176       1             5             10             15
177   Phe Leu Ser Leu Thr Asp Leu Gln Lys Asn Glu Thr Leu Asp His Leu
178           20             25             30
179   Ile Ser Leu Ser Gly Ala Val Gln Leu Arg His Leu Ser Asn Asn Leu
180           35             40             45
181   Glu Thr Leu Leu Lys Arg Asp Phe Leu Lys Leu Leu Pro Leu Glu Leu
182           50             55             60
183   Ser Phe Tyr Leu Leu Lys Trp Leu Asp Pro Gln Thr Leu Leu Thr Cys
184           65             70             75             80
185   Cys Leu Val Ser Lys Gln Trp Asn Lys Val Ile Ser Ala Cys Thr Glu
186           85             90             95
187   Val Trp Gln Thr Ala Cys Lys Asn Leu Gly Trp Gln Ile Asp Ser
188           100            105            110
189   Val Gln Asp Ala Leu His Trp Lys Val Tyr Leu Lys Ala Ile Leu
190           115            120            125
191   Arg Met Lys Gln Leu Glu Asp His Glu Ala Phe Glu Thr Ser Ser Leu
192           130            135            140
193   Ile Gly His Ser Ala Arg Val Tyr Ala Leu Tyr Tyr Lys Asp Gly Leu
194           145            150            155            160

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Output Set: N:\CRF4\09172003\J652928.raw

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195   Leu Cys Thr Gly Ser Asp Asp Leu Ser Ala Lys Leu Trp Asp Val Ser
196                               165                      170                      175
197   Thr Gly Gln Cys Val Tyr Gly Ile Gln Thr His Thr Cys Ala Ala Val
198                               180                      185                      190
199   Lys Phe Asp Glu Gln Lys Leu Val Thr Gly Ser Phe Asp Asn Thr Val
200                               195                      200                      205
201   Ala Cys Trp Glu Trp Ser Ser Gly Ala Arg Thr Gln His Phe Arg Gly
202                               210                      215                      220
203   His Thr Gly Ala Val Phe Ser Val Asp Tyr Asn Asp Glu Leu Asp Ile
204                               225                      230                      235                      240
205   Leu Val Ser Gly Ser Ala Asp Phe Thr Val Lys Val Trp Ala Leu Ser
206                               245                      250                      255
207   Ala Gly Thr Cys Leu Asn Thr Leu Thr Gly His Thr Glu Trp Val Thr
208                               260                      265                      270
209   Lys Val Val Leu Gln Lys Cys Lys Val Lys Ser Leu Leu His Ser Pro
210                               275                      280                      285
211   Gly Asp Tyr Ile Leu Leu Ser Ala Asp Lys Tyr Glu Ile Lys Ile Trp
212                               290                      295                      300
213   Pro Ile Gly Arg Glu Ile Asn Cys Lys Cys Leu Lys Thr Leu Ser Val
214                               305                      310                      315                      320
215   Ser Glu Asp Arg Ser Ile Cys Leu Gln Pro Arg Leu His Phe Asp Gly
216                               325                      330                      335
217   Lys Tyr Ile Val Cys Ser Ser Ala Leu Gly Leu Tyr Gln Trp Asp Phe
218                               340                      345                      350
219   Ala Ser Tyr Asp Ile Leu Arg Val Ile Lys Thr Pro Glu Ile Ala Asn
220                               355                      360                      365
221   Leu Ala Leu Leu Gly Phe Gly Asp Ile Phe Ala Leu Leu Phe Asp Asn
222                               370                      375                      380
223   Arg Tyr Leu Tyr Ile Met Asp Leu Arg Thr Glu Ser Leu Ile Ser Arg
224                               385                      390                      395                      400
225   Trp Pro Leu Pro Glu Tyr Arg Glu Ser Lys Arg Gly Ser Ser Phe Leu
226                               405                      410                      415
227   Ala Gly Glu His Pro Gly
228                               420

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230 <210> SEQ ID NO: 5

231 <211> LENGTH: 1407

232 <212> TYPE: DNA

233 <213> ORGANISM: Homo sapiens

234 <400> SEQUENCE: 5

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235   cggggtggtg tgtgggggaa gccgcccccg gcagcaggat gaaacgagga ggaagagata 60
236   gtgaccgtaa ttcacagaa gaaggaaactg cagagaaatc caagaaactg aggactacaa 120
237   atgagcattc tcagacttgt gattggggta atctccttca ggacattatt ctccaagtat 180
238   ttaaataatt gcctcttctt gaccgggctc atgcttcaca agtttgccgc aactggaacc 240
239   aggtatttca catgcctgac ttgtggagat gttttgaatt tgaactgaat cagccagcta 300
240   catcttattt gaaagctacc catccagagc tgatcaaaca gattattaaa agacattcaa 360
241   accatctaca atatgtcagc ttcaaggtgg acagcagcaa ggaatcagct gaagcagctt 420
242   gtgatatact atcgcaactt gtgaattgct ctttaaaaac acttggaact atttcaactg 480
243   ctcgaccaag ctttatggat ttaccaaagt ctactttat ctctgcactg acagttgtgt 540
244   tcgtaaactc caaatccctg tcttcgctta agatagatga tactccagta gatgatccat 600

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RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/10/652,928

DATE: 09/17/2003
TIME: 09:43:50

Input Set : N:\Crf3\RULE60\10652928.raw.txt
Output Set: N:\CRF4\09172003\J652928.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:26; Xaa Pos. 218,556,630
Seq#:29; N Pos. 13,47,68,88,270
Seq#:30; Xaa Pos. 15,22,28,89
Seq#:37; N Pos. 45,329,332
Seq#:38; Xaa Pos. 110,111
Seq#:51; N Pos. 1733
Seq#:52; Xaa Pos. 576,586
Seq#:53; N Pos. 348
Seq#:54; Xaa Pos. 150,309,340,374
Seq#:59; N Pos. 471

VERIFICATION SUMMARY

DATE: 09/17/2003

PATENT APPLICATION: US/10/652,928

TIME: 09:43:50

Input Set : N:\Crf3\RULE60\10652928.raw.txt

Output Set: N:\CRF4\09172003\J652928.raw

L:7 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:964 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:26 after pos.:208
M:341 Repeated in SeqNo=26
L:1188 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29 after pos.:0
M:341 Repeated in SeqNo=29
L:1203 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30 after pos.:0
M:341 Repeated in SeqNo=30
L:1374 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:0
M:341 Repeated in SeqNo=37
L:1403 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:96
L:1948 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:51 after pos.:1680
L:2030 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:52 after pos.:560
M:341 Repeated in SeqNo=52
L:2049 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:53 after pos.:300
L:2101 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:54 after pos.:144
M:341 Repeated in SeqNo=54
L:2349 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:59 after pos.:420

STATISTICS SUMMARY

PATENT APPLICATION: US/10/652,928

DATE: 09/17/2003

TIME: 09:43:50

Input Set : N:\Crf3\RULE60\10652928.raw.txt

Output Set: N:\CRF4\09172003\J652928.raw

Application Serial Number: US/10/652,928

Alpha or Numeric or Xml: Numeric

Application Class:

Application File Date: 08-28-2003

Art Unit: OIPE

Software Application: PatentIN2.0

Total Number of Sequences: 90

Total Nucleotides: 38541

Total Amino Acids: 11248

Number of Errors: 0

Number of Warnings: 21

Number of Corrections: 1

MESSAGE SUMMARY

271 C: 1 (Current Filing Date differs)

341 W: 21 ((46) "n" or "Xaa" used)